



Who is most at risk of HIV infection?

December 2005

Overview

Although diagnosis of HIV infection is not a direct measure of disease incidence, recent trends in the distribution of HIV diagnoses are the best available indicators for who is most at risk of HIV infection. While the distribution of HIV diagnoses across gender and race/ethnicity has remained fairly steady in the past five years, there has been a shift in race/ethnicity among females. From 1999 to 2004, the proportion of females diagnosed with HIV infection who are black (non-Hispanic) increased from 40% to 47%, while the proportion of white (non-Hispanic) females decreased from 30% to 17%.

Recently, there has also been a shift in the distribution of HIV diagnoses by place of birth. From 1999 to 2004, the proportion of HIV diagnoses among people born outside the US increased from 18% to 26%; among females 29% to 41%. Among black (non-Hispanic) females diagnosed with HIV infection within the years 2002 to 2004, 64% were born outside the US compared to 10% of white (non-Hispanic) females and 21% of Hispanic females.

Changes have also occurred in the distribution of HIV diagnoses by exposure mode. The proportion of all HIV diagnoses with male-to-male sex as an exposure mode increased from 28% in 1999 to 31% in 2004. Among males, the proportion of HIV diagnoses with male-to-male sex as the reported exposure mode increased from 40% in 1999 to 45% in 2004. The proportion of cases with injection drug use as the reported exposure mode decreased from 29% in 1999 to 15% in 2004. While caution should be used in interpretation, it is notable that jurisdictions across the nation have seen a similar decline in the incidence of HIV diagnosis among injection drug users.

The following analyses depict trends in HIV diagnosis and describe populations at risk of HIV infection in Massachusetts in greater detail.

Trends in HIV Diagnoses from 1999 to 2004

General Statistics

- Of all people diagnosed with HIV/AIDS and reported in Massachusetts, 20,348 were diagnosed with HIV infection before 1999, 1,316 were diagnosed with HIV infection in 1999, 1,144 in 2000, 988 in 2001, 1,030 in 2002, and 896 in 2003. As of July 1, 2005, 844 HIV diagnoses were reported as diagnosed in 2004. This number will continue to increase as additional cases continue to be reported, likely resulting in a continued plateau in the number of HIV diagnoses over the past three years.

Gender

- From 1999 to 2004, the distribution of people diagnosed with HIV infection by gender has remained steady, with 68% to 70% male and 30% to 32% female.

Race/Ethnicity

- Compared to people diagnosed with HIV infection before 1999, black (non-Hispanic) individuals and Hispanic individuals represent a larger proportion of reported cases among people diagnosed from 1999 to 2004.
- HIV diagnosis by race/ethnicity has remained fairly steady from 1999 to 2004 with white (non-Hispanic) individuals accounting for 38% to 42%, black (non-Hispanic) individuals accounting for 30% to 34% and Hispanic individuals accounting for 23% to 27% of new diagnoses in these years.

Gender and Race/Ethnicity

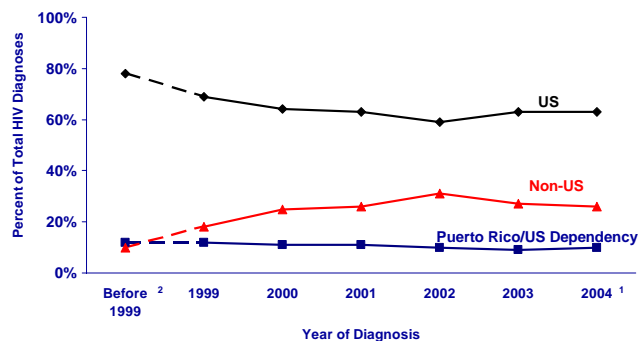
- Among **males**, the distribution of HIV infection by race/ethnicity has remained fairly stable from 1999 to 2004.

- During the same time period, the proportion of **females** diagnosed with HIV infection that are black (non-Hispanic) increased from 40% to 47%, and Hispanic from 26% to 31%, while the proportion of white (non-Hispanic) females decreased from 30% to 17%.

Place of Birth and Gender

- From 1999 to 2004, the proportion of people with diagnosed HIV infection who were born outside the US increased from 18% to 26%, while the proportion of HIV diagnoses in people born in the US decreased from 69% to 63%, for people born in Puerto Rico and other US dependencies, from 12% to 10%.

Figure 1. Percentage Distribution of People Diagnosed with HIV Infection by Place of Birth and Year of Diagnosis: Massachusetts, Before 1999, 1999-2004¹



¹ 2004 data are preliminary; ² Note: a dashed line is used to distinguish between pre-1999 data (which is an aggregate of multiple years before the implementation of HIV surveillance in 1999) and annual data for subsequent years. Data Source: MDPH HIV/AIDS Surveillance Program; Data as of 7/1/05

- In the past six years, the proportion of **males** diagnosed with HIV infection that was born outside the US or Puerto Rico and other US dependencies increased from 14% to 20%.
- During the same time period, the proportion of **females** diagnosed with HIV infection and born outside the US or Puerto Rico and other US dependencies increased from 29% to 41%.

Exposure Mode and Gender

- Among **males** diagnosed with HIV infection, the proportion of HIV diagnoses with male-to-male sex as the reported exposure mode increased from 40% in 1999 to 48% in 2003 and then decreased to 45% in 2004.

- The proportion of HIV exposures among **males** attributed to injection drug use (15%) has decreased from prior years.
- From 1999 to 2004, the proportion of HIV diagnoses in **females** presumed exposed to HIV through heterosexual sex with a partner or partners of unknown risk and HIV status (presumed heterosexual) increased from 33% to 42%.
- Among **females** diagnosed with HIV infection, the proportion of HIV diagnoses with injection drug use as the reported exposure mode decreased from 30% in 1999 to 15% in 2003 and then increased to 19% in 2004.

(Note: Caution should be used in interpreting large increases or decreases from one year to the next. Reporting artifacts, such as underreporting of certain risk categories, may account for some of these differences, particularly in more recent years.)

Age at HIV Diagnosis

- In 2004, 9% of people diagnosed with HIV infection were 13-24 years old, 10% were 25-29 years old, 15% were 30-34 years old, 20% were 35-39 years old, 17% were 40-44 years old, 13% were 45-49 years old, and 15% were 50 years old or older.
- The proportion of people diagnosed with HIV infection at age 50 years or older increased from 9% in 1999 to 15% in 2004.
- Thirteen percent of females diagnosed with HIV infection in 2004 were 13 to 24 years old, compared to 7% of males.

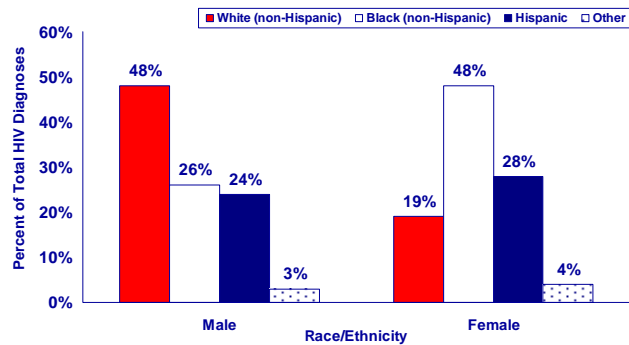
A Profile of People Recently Diagnosed with HIV Infection: Race/Ethnicity and Gender

- The distribution of race/ethnicity among person with HIV infection is different in males and females diagnosed within the years 2002 to 2004. While 48% of **males** diagnosed with HIV infection within the years 2002 to 2004 are white (non-Hispanic), 48% of **females** diagnosed during this time period are black (non-Hispanic).

For detailed data tables and technical notes please see Appendix

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Figure 2. People Diagnosed with HIV Infection Within the Years 2002 to 2004 by Gender and Race/Ethnicity: Massachusetts

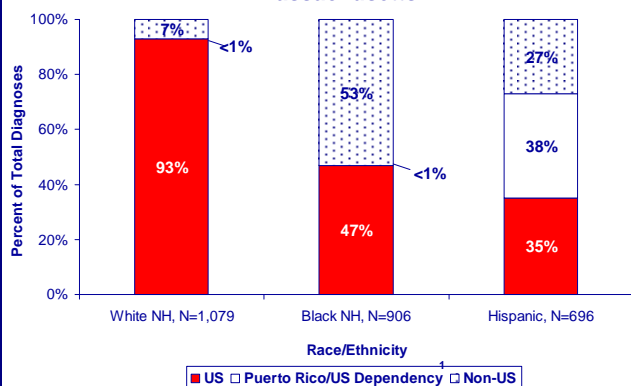


Data Source: MDPH HIV/AIDS Surveillance Program, Data as of 7/1/05

Race/Ethnicity and Place of Birth

- Fifty-three percent of black (non-Hispanic) individuals diagnosed with HIV infection within the three year period 2002 to 2004 were born outside the US, compared to 27% of Hispanic individuals and 7% of white (non-Hispanic) individuals.

Figure 3. People Diagnosed with HIV Infection Within the Years 2002 - 2004 by Race/Ethnicity and Place of Birth: Massachusetts



¹ 94% of people diagnosed with HIV infection from 2002-2004 that were born in a US Dependency were born in Puerto Rico; NH=Non-Hispanic; Data Source: MDPH HIV/AIDS Surveillance Program, Data as of 7/1/05

- The majority of non-US-born black (non-Hispanic) individuals diagnosed with HIV infection within the three year period 2002 to 2004 are from Sub-Saharan Africa and the Caribbean, while the majority of non-US-born Hispanic individuals and white (non-Hispanic) individuals are from Central and South America.

Race/Ethnicity, Place of Birth and Gender

- Forty-one percent of females diagnosed with HIV infection within the three year period 2002 to 2004 were born outside the US compared to 23% of males. Among black (non-Hispanic) **females**, the proportion born outside the US is 64% compared to 21% of Hispanic females and 10% of white (non-Hispanic) females. Among black (non-Hispanic) **males**, the proportion is 44% compared to 30% of Hispanic males and 7% of white (non-Hispanic) males.

Race/Ethnicity and Exposure Mode

- While the predominant mode of exposure among white (non-Hispanic) individuals diagnosed with HIV infection within 2002 to 2004 is male-to-male sex (58%), the predominant mode of exposure among black (non-Hispanic) individuals is presumed heterosexual sex with partners with unknown risk and HIV status (presumed heterosexual, 40%) and among Hispanic individuals is injection drug use (24%).

Race/Ethnicity, Exposure Mode and Gender

- Exposure mode among people diagnosed with HIV infection within the three year period 2002 to 2004 varies by race/ethnicity among both males and females.
- Among **white (non-Hispanic) males**, male-to-male sex is the predominant exposure mode, attributed as exposures in 68%.
- Among **black (non-Hispanic) males**, presumed heterosexual sex with partners with unknown risk and HIV status (presumed heterosexual) accounts for 28%, male-to-male sex 22% and injection drug use 14% of reported exposures.
- Among **Hispanic males**, exposure mode is also more evenly distributed with male-to-male sex accounting for 30% and injection drug use 27% of exposures.

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- While the predominant reported mode of exposure among **white (non-Hispanic) females** diagnosed with HIV infection within the years 2002 to 2004 is injection drug use (37%), the predominant exposure mode among **black (non-Hispanic) females** is presumed heterosexual sex with partners with unknown risk and HIV status (presumed heterosexual) (55%) and among **Hispanic females** is heterosexual sex (with partners with known risk and HIV status, 36%).

Distribution by Gender and Health Service Region (HSR)

- The Boston and Southeast regions have the highest proportion of males with HIV infection diagnosed within the three-year period 2002 to 2004 at 74%.
- The Central and Western regions have the highest proportion of females among people diagnosed with HIV infection within the three-year period 2002 to 2004 at 44% and 38%, respectively.

Distribution by Race/Ethnicity and Health Service Region (HSR)

- While white (non-Hispanic) individuals constitute the largest proportion of people recently diagnosed with HIV infection in the Southeast (58%), Metrowest (44%), Central (39%) and Northeast (37%) regions, Hispanic individuals are the largest proportion in the Western region (53%) and black (non-Hispanic) individuals the largest proportion in the Boston region (41%).
- While numbers are relatively small, the proportion of recent HIV diagnoses that are made in Asian/Pacific Islanders in the Northeast region (5%) is at least double that of all other regions.

Distribution by Exposure Mode and Health Service Region (HSR)

- Male-to-male sex is the predominant exposure mode for people diagnosed with HIV infection in the Boston (42%) and Southeast (36%) regions.

- Injection drug use is the predominant exposure mode for people diagnosed with HIV infection in the Western (24%) region.
- In the Central region, presumed exposure through heterosexual sex is attributed to the largest proportion of people diagnosed with HIV infection at 30%.
- In the Northeast region exposure mode is more evenly distributed with male-to-male sex accounting for 29%, presumed exposure through heterosexual sex 26%, and injection drug use 14% of reported exposures to HIV infection.

People at Risk of HIV Infection

State-funded HIV Counseling and Testing

- In 2004, 45,825 HIV tests were performed at publicly-funded HIV counseling and testing (C&T) sites, of which 1.0% (N=454) were positive.
- In 2004, more HIV tests were performed on males (63%, N=28,803) than females (36%, N=16,619) at publicly-funded sites.
- The majority of HIV tests were performed in white (non-Hispanic) clients (42%, N=19,089) followed by Latino* (25%, N=11,507) and African-American* clients (19%, N=8,763).
- While 38% of positive HIV tests were in Latinos*, they account for only 25% of all tests conducted.
- While 29% of positive HIV tests were in African-Americans*, they account for only 19% of all tests conducted.
- By race/ethnicity, the highest percentages of positive HIV tests were in African-Americans and Latinos* both at 1.5%.
- While people ages 20-24 years old (21%, N=9,587) account for the largest number of total tests across age categories, the percent of positive tests among this age group is low (0.4%).

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- By age category, the highest percentages of positive HIV tests were in 40-44 year olds at 1.8% and 45-49 year olds at 1.5%.
- The highest percentage of positive HIV tests was among clients reporting both male-to-male sex and injection drug use as their risk (3.0%) followed by male-to-male sex only (2.7%).

* Racial/ethnic categories collected for counseling and testing data differ from those collected for the HIV/AIDS surveillance data presented elsewhere in this report

Behavioral Risk for HIV Infection

Number of Sexual Partners

- Among 2,687 respondents to the 2004 Massachusetts Behavioral Risk Factor Surveillance System (BRFSS) survey, ages 18-64 years, 10% reported two or more partners, 76% reported one partner, and 14% reported no sexual partners in the past year.
- The largest proportions of people reporting two or more partners were young (25% of 18-24 year olds reported two or more partners), were men (15% of men reported two or more partners compared to 5% of women), and were black (non-Hispanic) or Hispanic (18% of black individuals and 17% of Hispanic individuals reported two or more partners compared to 9% of white (non-Hispanic) and 7% of Asian individuals).
- Forty-five percent of **males** who have sex with same sex partners reported two or more sexual partners compared to 13% of males who have sex with opposite sex partners.
- Thirty-seven percent of **males** ages 18-24 years reported two or more sexual partners compared to 17% of males ages 25-34, 12% of males ages 35-44, and 6% of males ages 45-64.
- Fourteen percent of **females** ages 18-24 years reported two or more sexual partners compared to 7% of females ages 25-34, 3% of females ages 35-44, and 1% of females ages 45-64.

- Eight percent of **Hispanic females** reported two or more sexual partners compared with 5% of **white (non-Hispanic) females** and 6% of **black (non-Hispanic) females**.

Condom Use:

- Of 2,168 sexually active respondents to the 2004 BRFSS ages 18-64 years, 25% reported using a condom at last sexual encounter (26% of male respondents and 23% of female respondents).
- Thirty-eight percent of Hispanic and 37% of black (non-Hispanic) respondents reported condom use at last sexual encounter, compared to 22% of white (non-Hispanic) individuals.
- Regarding sex with multiple partners, 62% of those reporting 3 or more partners also reported condom use at last sex.
- Of men reporting a same-sex partner, 48% reported condom use at last sex, while 24% of men with opposite-sex partners reported condom use at last sex.

Data Sources:

HIV/AIDS Case Data: Massachusetts Department of Public Health, HIV/AIDS Surveillance Program, All Data as of 7/1/05

Counseling and Testing Data: Massachusetts Department of Public Health, HIV/AIDS Bureau, Office of Research and Evaluation

BRFSS Data: Massachusetts Department of Public Health, Bureau of Health Statistics, Research and Evaluation, Behavioral Risk Factor Surveillance System

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